

What is claimed is:

1. A tool for providing a site survey of a wireless network comprising:  
a network server having a server application module to create and distribute data packets;  
a plurality of access points coupled to send and receive data packets from the server;  
a portable computer in wireless communication with the plurality of access points, the portable computer having a two-dimensional surface area map on a data grid;  
and  
wherein the portable computer receives data packets sent by the network server and includes instructions that are adapted to compute at least one of throughput and packet error rate at selected locations within a network coverage area and display the at least one of throughput and packet error rate on the two-dimensional surface area map to provide a site survey of the wireless network coverage.
2. The tool for providing a site survey of a wireless network of claim 1 further comprising:  
a distribution system to coupled signals between the access points and the network server.
3. The tool for providing a site survey of a wireless network of claim 1 wherein the server distributes the data packets to all of the access points simultaneously thereby exposing co-channel interference.
4. The tool for providing a site survey of a wireless network of claim 1 wherein the data grid has a user definable grid size, grid increment, grid line size and a surface area line size.

5. The tool for providing a site survey of a wireless network of claim 1 wherein the two-dimensional surface are map displays the site survey with lines using empirical data.

6. The tool for providing a site survey of a wireless network of claim 1 wherein the portable computer further comprises:

a data collection module to collect data sent from the access points and to calculate throughput and packet error rate;

a data conditioning module to place relative data points locations on the data grid, to interpolate and extrapolate data and to set parametric limits on the data;

a surface mapping module to map the data from the data conditioning module to the two-dimensional surface map; and

a graphical interface module to communicate with and link the data collection module the data conditioning module, the surface mapping module and the registry module.

7. The tool for providing a site survey of a wireless network of claim 6 wherein the data collection module is hardware independent.

8. The tool for providing a site survey of a wireless network of claim 6 wherein the data conditioning module limits data to a user defined parametric minimum and maximum.

9. The tool for providing a site survey of a wireless network of claim 8 wherein the surface area mapping module uses the data parametric minimum and maximum of the data conditioning module to calculate the positioning of lines of different colors on the surface area map to convey wireless network coverage of a particular area.

10. The tool for providing a site survey of a wireless network of claim 9 wherein the surface area map uses three different colors to distinguish the quality of wireless network coverage.

11. The tool for providing a site survey of a wireless network of claim 6 wherein the graphical interface module further comprises:  
iconic markers to indicate data points.

12. The tool for providing a site survey of a wireless network of claim 11 wherein the data points are dropped onto the surface area map to indicate the locations where the portable computer receives the data packets sent by the network server.

13. The tool for providing a site survey of a wireless network of claim 11 wherein the data points mark the location of the access points.

14. A tool for providing a site survey of a wireless network comprising:  
a network server to create and distribute data packets;  
a plurality of access points coupled to receive the data packets from the server;  
a mobile client in wireless communication with the plurality of access points,  
the client having a two-dimensional surface area map on a data grid; and  
wherein the client includes instructions that are adapted to compute at least one of throughput and packet error rate at selected locations within a network coverage area when the client receives data packets sent by the network server and display the at least one of throughput and packet error rate on the two-dimensional surface area map to provide a site survey of the wireless network coverage.

15. The tool for providing a site survey of a wireless network of claim 14 wherein the server distributes the data packets to all of the access points simultaneously thereby exposing co-channel interference.

16. The tool for providing a site survey of a wireless network of claim 14 wherein the data grid has a user definable grid size, grid increment, grid line size and a surface area line size.

17. The tool for providing a site survey of a wireless network of claim 14 wherein the two-dimensional surface area map displays the site survey with lines using empirical data.

18. The tool for providing a site survey of a wireless network of claim 14 wherein the client sends a request to the network server to create and distribute the data packets.

19. The tool for providing a site survey of a wireless network of claim 14 wherein the client further comprises:

a data collection module to collect data sent from the access points and to calculate throughput and packet error rate;

a data conditioning module to place relative data points locations on the data grid, to interpolate and extrapolate data and to set parametric limits on the data;

a surface mapping module to map the data from the data conditioning module to the two-dimensional surface map; and

a graphical interface module to communicate with and link the data collection module the data conditioning module, the surface mapping module and the registry module.

20. The tool for providing a site survey of a wireless network of claim 19 wherein the client further comprises:

a registry module to save to and read from a window registry.

21. The tool for providing a site survey of a wireless network of claim 19 wherein the data collection module is hardware independent.

22. The tool for providing a site survey of a wireless network of claim 19 wherein the data conditioning module limits data to a user defined parametric minimum and maximum.

23. The tool for providing a site survey of a wireless network of claim 22 wherein the surface area mapping module uses the data parametric minimum and maximum of the data conditioning module to calculate the positioning of lines of different colors on the surface area map to convey wireless network coverage of a particular area.

24. The tool for providing a site survey of a wireless network of claim 23 wherein the surface area map uses three different colors to distinguish the quality of wireless network coverage.

25. The tool for providing a site survey of a wireless network of claim 19 wherein the graphical interface module further comprises:  
iconic markers to indicate data points.

26. The tool for providing a site survey of a wireless network of claim 25 wherein the data points are dropped onto the surface area map to indicate the locations where the client receives the data packets sent by the server.

27. The tool for providing a site survey of a wireless network of claim 25 wherein the data points mark the location of the access points.

28. A method of providing a site survey of a wireless network comprising:

sending data packets through the wireless network;  
collecting data on the data packet transmission;  
calculating throughput and error rate; and  
implementing the throughput and error rate into a two-dimensional vector  
surface area map to convey a graphical representation of the wireless network coverage.

29. The method of claim 28 wherein a three color parametric scale is used to discriminate the quality of network coverage in the graphical representation of the wireless network coverage.

30. The method of claim 28 further comprising:  
importing a floor plan image to a screen of a computer of an area to be surveyed; and  
displaying the graphical representation of the wireless network coverage on the floor plan image.

31. The method of claim 28 wherein the sending of data packets through the wireless network further comprises:  
placing access points at various positions within an area to be surveyed;  
generating requests for a specific number of packets containing a specific number of bits with a portable computer selectively positioned at various areas throughout the building being surveyed;  
sending the requests to a network server via the access points;  
generating the requested number of packets with the requested number of bits with the network server;  
sending the requested number of packets with the requested number of bits to the portable computer via the access points; and  
wherein the portable computer receives the requested number of packets at the location the portable computer generated the request.

32. The method of claim 31 wherein the requested packets are sent multicast through all of the access points to expose co-channel interference.

33. The method of claim 31 wherein a program in the portable computer calculates throughput and packet error rate.

34. A method of providing a site survey of a wireless network comprising:  
importing a floor plan image of a building to be surveyed into a portable computer wirelessly coupled to a network server via access points;

marking the location of the access points on the imported floor plan image;

positioning the portable computer at selected locations within the building;

marking the locations of the portable computer on the imported floor plan image;

sending a request signal from the portable computer to the network server via the access point requesting a signal containing packets be created by the network server and sent back to the portable computer while the portable computer is at the then current location marked on the imported floor plan image;

receiving the request signal at the network server via the access points;

generating the packet requests;

sending the packet requests multicast to the portable computer;

computing the packet error rate and throughput; and

displaying the quality of signal strength based on the packet rate and throughput on a two-dimensional vector map imposed over the imported floor plan image.

35. The method of claim 34 further comprising:

applying a parametric qualification on the data to display the quality of signal strength.

36. The method of claim 35 wherein applying the parametric qualification on the data further comprises

- using lines of a first color to indicate areas having a signal strength higher than a user defined upper limit;
- using lines of a second color to indicate areas having a signal strength below a user defined lower limit; and
- using lines of a third color to indicate signal strength between the upper and lower limits.

37. The method of claim 34 wherein the more request signals sent by the portable computer at different locations the more detailed the site survey.

38. A method of providing a site survey comprising:

- importing a floor plan image of an area to be surveyed into a client that is wirelessly coupled to a server via access points;
- marking the location of the access points on the floor image map;
- positioning the client at various locations within the area to be surveyed;
- marking the various locations of the client on the floor plan image;
- receiving packet signals with the client from the server at each of the various locations;
- calculating at least one of throughput and packet error rate for each of the various locations; and
- displaying the quality of the signal based on the at least one of throughput and packet error rate on a two-dimensional vector map imposed over the floor plan image.

39. The method of claim 38 wherein the client generates a request to the server to send the packet signal back to the client when a location of the client is marked on the floor plan image.



40. The method of claim 38 further comprising:

applying a parametric qualification to data calculated from the at least one of throughput and error rate in displaying the quality of signal on the two-dimensional vector map.

41. The method of claim 40 wherein applying the parametric qualification on the data further comprises:

using a first color to indicate areas having the at least one of throughput and error rate higher than a user defined upper limit;

using a second color to indicate areas having the at least one throughput and error rate less than a user defined lower limit; and

using a third color to indicate areas having the at least one throughput and error rate less between the user defined upper and lower limits.

42. The method of claim 41 wherein the first, second and third colors are displayed as lines on the two-dimensional vector map.

43. A computer-readable medium including instructions for implementing a method comprising:

importing a floor plan image of an area to be surveyed into a client that is wirelessly coupled to a server via access points;

marking the location of the access points on the floor image map;

marking various locations of the client on the floor plan image;

receiving packet signals with the client from the server at each of the various locations;

calculating at least one of throughput and packet error rate for each of the various locations; and

displaying the quality of the signal based on the at least one of throughput and packet error rate on a two-dimensional vector map imposed over the floor plan image.

44. The computer-readable medium including instructions for implementing a method of claim 43 further including:

generating a request command to send a packet signal with a client; and  
transmitting the request to the server.

45. The computer-readable medium including instructions for implementing a method of claim 43 further comprising:

applying a parametric qualification to data calculated from the at least one of throughput and error rate in displaying the quality of signal on the two-dimensional vector map.

46. The computer-readable medium including instructions for implementing a method of claim 45 wherein applying the parametric qualification on the data further comprises:

using a first color to indicate areas having the at least one of throughput and error rate higher than a user defined upper limit;

using a second color to indicate areas having the at least one throughput and error rate less than a user defined lower limit; and

using a third color to indicate areas having the at least one throughput and error rate less between the user defined upper and lower limits.

47. The computer-readable medium including instructions for implementing a method of claim 46 wherein the first, second and third colors are displayed as lines on the two-dimensional vector map.

48. A computer-readable medium including instructions for implementing a method comprising:

